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The Gift of Marjorie Gertrude Fiske

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Boston University  
School of Education

Thesis  
Degeneration in Handwriting

Submitted by  
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(B.S. in Ed., Teachers College, Bridgewater-1939)

In partial fulfillment of requirements for  
the degree of Master in Education

1945

First Reader: Helen A. Murphy, Assistant Professor of Education

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✓

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John M. G. Fiske

May 10, 1945

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### CHAPTER II

The first part of the chapter is devoted to a discussion of the various methods of determining the rate of reaction. The second part is devoted to a discussion of the various factors which influence the rate of reaction. The third part is devoted to a discussion of the various theories of reaction rates. The fourth part is devoted to a discussion of the various applications of reaction rate data.

The rate of reaction is defined as the change in concentration of a reactant or product per unit time. It can be determined by measuring the change in concentration of a reactant or product over a known period of time. There are several methods of determining the rate of reaction, including the initial rates method, the integrated rate law method, and the half-life method.

The initial rates method involves measuring the initial rate of reaction at different concentrations of reactants. The integrated rate law method involves measuring the concentration of a reactant or product at different times and plotting the data against time. The half-life method involves measuring the time required for the concentration of a reactant to decrease by half.

Several factors influence the rate of reaction, including temperature, concentration, and the presence of a catalyst. The rate of reaction increases with increasing temperature, increasing concentration, and the presence of a catalyst.

There are several theories of reaction rates, including the collision theory, the transition state theory, and the steady-state approximation. The collision theory states that a reaction occurs when two molecules collide with sufficient energy and in the correct orientation. The transition state theory states that a reaction occurs when a molecule passes through a transition state. The steady-state approximation states that the concentration of a reactant remains constant over time.

Reaction rate data has many applications, including the determination of the mechanism of a reaction, the determination of the rate constant, and the determination of the activation energy of a reaction.

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## INTRODUCTION

This study is an effort to determine in what ways and to what extent handwriting degenerates after formal instruction has been discontinued.

West states<sup>1</sup> "The feeling that low standards in high school are responsible for much 'back sliding' in penmanship habits needs definite substantiation. It is true that penmanship is commonly thought of as an elementary-school subject which is completed in the grades; only recently has there been any consideration of handwriting as a skill needing attention during the secondary-school life of the child". He feels that there is need for formal handwriting instruction beyond that which is usually given through the sixth grade. He feels that the handwriting has deteriorated since elementary school instruction.

Ayer says<sup>2</sup> "General ability in handwriting deteriorates very rapidly unless, in gaining skill, the pupil also acquires the attitude of writing well regardless of circumstances".

The following paragraph brings out the opinion of one person on the degeneration of handwriting.<sup>3</sup> "The writer was once

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<sup>1</sup>West, Paul V., Changing Practice in Handwriting Instruction (1928) Public School Pub. Co., Bloomington, Ill.

<sup>2</sup>Ayer, F. C., "The Attainment of Objectives in Handwriting" El. School Journal, Sept. '27, Vol. 28, pp 44-53.

<sup>3</sup>West, Paul V., Changing Practice in Handwriting Instruction, 1928, p. 68. Public School Pub. Co. Bloomington, Ill.





a supervisor of penmanship with two diplomas in the subject and wrote fairly well. The scrawl on this questionnaire is typical of his ordinary writing after 10 years during which penmanship was a matter of minor importance. We have in high school many pupils who have earned \_\_\_\_ diplomas in the grades but whose writing after a year or two of high school is as bad as tho they had had no instruction at all. Maybe ten percent continue to write well."

Shaw and Crumpton studied the handwriting of school children in Detroit and found<sup>4</sup> "after the release of the pupils from their training in the elementary grades, their handwriting increases in speed as they advance through the high school but does not improve in quality". A remedial program was tried and it was found that the pupils improved in both rate and quality of writing when legibility was motivated through the English and other subjects in the school. It was mentioned that attitude is a potent factor in the development of a skill.

Many statements have been made concerning the degeneration of handwriting and some studies have been made. It seems beneficial that more scientific investigation be made on the subject. Therefore, this study is an attempt to find out in what ways and to what extent handwriting does degenerate after formal instruction has been discontinued.

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<sup>4</sup>Shaw, L. A., Crumpton, C. E., "The Attitude of the Child in Matters of Skill" El. School Journal, Nov. 1929, 30:218-22.



## CHAPTER I

### SUMMARY OF PREVIOUS RESEARCH

Shepherd states<sup>1</sup> "The average high school teacher detests nothing more than a poorly written paper. .... the marks given on papers seem to be greatly influenced by the penmanship on the paper".

Shaw studied the physical, intellectual, emotional, and social characteristics in trying to discover the cause of poor handwriting. Some of the reasons given for poor handwriting were<sup>2</sup> "nervousness, defective vision, left-handedness, and social circumstances .... the good writers were a little younger than the poor writers. The difference in intelligence between the good and poor writers was not marked. Poor writing is poor for a definite reason. The cause must be found before improvement is made".

Other experiments have been made to discover what causes illegibility in handwriting. Pressey & Pressey found<sup>3</sup> "7 letters poorly formed were responsible for over half of the difficulties in the reading of handwriting. Teaching emphasis should be placed on correcting errors."

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<sup>1</sup>Shepherd, E. M., "Effect of the Quality of Penmanship on Grades" Journal Ed. Res., Feb. '29, 19:102-5.

<sup>2</sup>Shaw, L. A. & Irwin, M.E. "A Study of Good and Poor Writers", Educational Methods, Feb. 1933, 12:275-84.

<sup>3</sup>Pressey, L. C. & Pressey, S. L. "Analysis of Three Thousand Illegibilities in Handwriting of Children and Adults", Ed. Res. Bulletin, Sept. '27, Vol. VI No. 13-28. "The Ohio State University College of Ed."



Gates studied the psychology of reading and spelling and found<sup>4</sup> "Laborious and illegible writing, whether due to native inaptitude or to poor training, would place a serious inhibition on one important form of spelling practice so that when poor writing is found it should be improved, if possible, in the interest of spelling if not for its own sake".

La Salle studied writing ability and its relation to other abilities and concluded<sup>5</sup> "Writing ability is mainly determined by a special native capacity or aptitude. .89 is the probable correlation between writing ability now and 8 months hence. Writing ability parallels chronological age closely when other influences are equal. For groups of average and superior children the association with intelligence is approximately zero".

Freeman says,<sup>6</sup> "The development of handwriting in the child is governed not only by the general laws of habit formation as applied to this particular process, but also by the laws of the development of motor capacity in the child."

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<sup>4</sup>Gates, A. I., "The Psychology of Reading and Spelling" Teacher's College Columbia University Contributions to Ed. No. 129 pub. 1922 New York City. p. 76.

<sup>5</sup>Gates, A. I. & LaSalle, J., "A Study of Writing Ability and Its Relation to Other Abilities". Journal of Ed. Res. April 1924, 15:205-16.

<sup>6</sup>Freeman, F. N. & Dougherty, Mary L., How to Teach Handwriting, Houghton Mifflin Co. Boston 1923, pp. 11-24.





Freeman states<sup>7</sup> "Writing has not been thoroughly learned until the child can give his attention chiefly to the train of thought he is engaged in expressing while the mechanics of the production of the letters are regulated to the realm of habit... Experiemented investigations have shown that one of the main differences between the writing of the child and the adult is that the latter is very much more characterized by rhythm than the former; that is, the adult tends to write in time as though to music."

Concerning the instruction in handwriting Cole says,<sup>8</sup> "Children improve in handwriting about as well minus instruction as with. Handwriting skill correlates highly with age. Muscular development and control are functions of chronological age and physical condition, not of intelligence".

Prewit states<sup>9</sup> "Supervision appears definitely to keep a better balance between speed and quality."

There are many ideas existing concerning hand-writing and its different phases. Cole feels,<sup>10</sup> "Handwriting exists for no other purpose than to be real.... Speed has more practical value than appearance".

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<sup>7</sup>Freeman, F. N., The Teaching of Handwriting, Houghton Mifflin, Boston 1914, p. 4.

<sup>8</sup>Cole, Luella, Psychology of the Elementary School Subjects, Farrar & Rinehart, Inc. New York, 1934, Ch. V, pp. 115-149.

<sup>9</sup>Prewit, I, & Manuel, H.I., "Differences in the Handwriting of Supervised and Unsupervised Pupils" School and Society, Mar. 1930, 31: 297-298.

<sup>10</sup>Cole, Luella, "Achieving Legible Handwriting", Psychology of the El. Sc. Subjects, pp. 115-49.



Other research concerning speed of handwriting mention the following: Goetsch found<sup>11</sup> "Speed of handwriting in the intermediate grades is not affected by the type of handwriting instruction given in the lower grades".

Graves found<sup>12</sup> "Extrem slant was the most rapid in the one minute test. The oldest pupils were in the fastest groups. Girls were faster than boys".

Gray found<sup>13</sup> "Speed improves more from the second to the fifth than the fifth to the eighth. Girls are slightly superior in speed and quality. The association between writing and intelligence is approximately zero."

Roman states<sup>14</sup> "It is a fact that puberty gives a special impetus to writing speed, while further development of speed terminates with sexual maturation. There is no reason to assume that quick speed expresses mental alertness".

Gates reports studies designed to yield some information concerning the relation of quality and speed of performance in

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<sup>11</sup>Goetsch, W. R., "The Effect of Early Handwriting Instruction", El. School Journal, Dec. 1935, 36: 290-298.

<sup>12</sup>Graves, S. M., "A Study in Handwriting " Journal of Ed. Psy., Oct, '16, 7:483-494.

<sup>13</sup>Gray, Truman C., "The Training of Judgment in the Use of the Ayers Scale for Handwriting", Journal of Ed. Psy. Vol. 6, pp. 85-93.

<sup>14</sup>Roman, Klara G., "Studies on the Variability of Writing Speed and Point Pressure in School Children", Ped. Sem. and j. Genet. Psych., Sept. 1936, 49: 139-160.



the case of one function, handwriting, and concludes<sup>15</sup> "the relation and rate of performance is open to much experimentation by the use of tests which have been or may be devised".

From a survey Freeman found<sup>16</sup> "1st. grade pupils write less than half as fast as 8th. grade....Motor ability changes with age".

Wittler states<sup>17</sup> "Anatomic age as expressed in skeletal development appears irrelevant as a determiner of either rate or quality of penmanship. Superior mental ability is a more important correlate. The bright child is usually a rapid writer. There is evidence of the existence of that unidentified co-ordination or muscular control, with the probability that it does not effect scores in penmanship."

The Third Year Book mentions a speed standard.<sup>18</sup> "The reasonable standard in speed at the end of the sixth grade is the medium rate of 70 letters per minute".

Shaw and Crumpton studied attitudes in matters of skill and concluded<sup>19</sup> "In general the pupils improved in both rate

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<sup>15</sup>Gates, A. I., "The Relation of Quality and Speed of Performance: A Formula for Combining the Two in the Case of Handwriting", Journal of Ed. Psy., Mar. 1924, 15: 129-144.

<sup>16</sup>Freeman, F. N., The Psychology of the Common Branches, Houghton Mifflin Co., Boston, Cpy. 1916, pp. 6-33.

<sup>17</sup>Wittler, Milton, "Factors Affecting Ability in Handwriting", School and Society, June 1929, 29: 847-850.

<sup>18</sup>Third Year Book, Dept. of Superintendents N.E.A., Washington 1925, C. VI pp. 215-216.

<sup>19</sup>Shaw, L. & Crumpton C. E., "The Attitude of the Child in matters of Skill", El. School Journal, Nov. 1929, 30: 218-222.







and quality of writing when legibility was motivated through the English and other classes. Attitude is a potent factor in the development of a skill".

In a study of good and poor writers Shaw and Irwin found,<sup>20</sup> "The good writers (in each grade) were a little younger than the poor writers. The difference in intelligence between the good and poor writers was not marked."

From an experiment with two classes of children (cultural background and poor economic background) Bolton found,<sup>21</sup> "These tests showed that with the brighter children motor power increases with advancing age."

Concerning manuscript writing, Arnold says,<sup>22</sup> "We find that manuscript writing meets the needs of the young primary pupils but that it becomes illegible when the children grow older and wish to write rapidly."

From tests given year after year in the Bronxville Public Schools Beatty reports<sup>23</sup> "The average speed of manuscript and cursive writing is almost identical."

It is evident that further research on the subject of manuscript writing is necessary.

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<sup>20</sup>Show, L. A. & Irwin, M. E., "A Study of Good and Poor Writers", Educational Methods, Feb. 1933, 12: 275-284.

<sup>21</sup>Bolton, T. L., "The Relation of Motor Power to Intelligence", American Journal of Psy. 1903, 14: 615-631.

<sup>22</sup>Arnold, E. W., "The Transition from Manuscript to Cursive Writing", Elementary School Journal, April 1933, 33: 616-620.

<sup>23</sup>Beatty, W. W., "Manuscript Writing an Effective Tool for Adult Life", Nations' Schools. Sept. 1936, Vol. 18, pp. 30-32.



Gates and Brown studied the comparisons of print-script and cursive writing and found<sup>24</sup> "There is need for a thorough-going experimental appraisal of the writing alphabets in order to select series of letter forms that can be learned more easily and that will result both in a more rapid writing and greater legibility than any of the current types".

Wittler mentions<sup>25</sup> "We cannot expect school children to be strongly motivated toward graceful writing until some change is made in our American folkways. It is not uncommon for their adults to show indifference to bad writing, if not even to take a certain pride in the illegibility of their own script".

Many other investigations have been made in the field of handwriting. These listed are given as an illustration of the variety of experiments that have been made in order to better understand the existing situation in this field.

This study is an attempt to find out in what ways and to what extent handwriting does degenerate after formal instruction has been discontinued.

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<sup>24</sup>Gates, A. I. & Brown, H., "Experimental Comparisons of Print-script and Cursive Writing", Journal of Ed. Res., 1929, 20: 3-16.

<sup>25</sup>Wittler, Milton, "Factors Affecting Ability in Handwriting", School and Society, June 1929, 29: 847-850.



## CHAPTER II

### PLAN OF THE EXPERIMENT

Problem. In what ways and to what extent does handwriting degenerate after formal instruction has been discontinued?

Arrangements were made with the Superintendent of Schools, the High School Principal, and the Head of the English department to do the testing for this experiment in a town of about 9,000 people. They depend on the Summer Tourist Industry for their living and are conservative and proud of the things their town has to offer. Their historical background is woven about many a famous sea captain. The testing was done on October 13, 1944.

The present seniors in the high school were used for this experiment. The I.Q.'s determined from "The Pintner General Ability Test-A"<sup>1</sup> given in 1940 ranged from 82 to 130 with a median of 107.

The Zaner-Bloser Writing Scale for Grade Six was used in scoring all the handwriting. A diagnostic chart, "Handwriting Faults and How to Correct Them", prepared by the Zaner-Bloser Staff was used in studying the samples of handwriting.

In order to do this experiment, it was necessary to have material written by these seniors when they were in the sixth grade. The writer, after going through tests in the files at the high school, located a set of Metropolitan Achievement Tests (Form B) for Grades 4, 5, 6<sup>2</sup> which contained a list of

<sup>1</sup>World Book Company, Yonkers-on-Hudson, N.Y., 1938.

<sup>2</sup>Ibid, 1934.





spelling words. These tests had been given in May, 1939. The list of spelling words was found to be suitable for the experiment.

After locating this material the writer obtained a list of the present seniors and examined the tests to locate the sixth grade writing sample for as many seniors as possible. Because some pupils had left this school system since the sixth grade and others had entered, the writer was able to obtain complete data on fifty-two students.

As these pupils had been taught handwriting in the sixth grade according to the Zaner-Bloser Writing System a Zaner-Bloser Handwriting Scale for Grade Six was obtained and used to score the sixth grade handwriting samples. The fifty-two specimens were scored individually for quality including form, slant, spacing, size, line quality, and alignment. Because the writing samples to be scored were written as lists of words and the writing scale was in paragraph form the writer cut the paragraph into isolated words and pasted them on a piece of oak tag in list form. This scale is found in the Appendix, page 51 . This made the scoring more accurate.

The formation of letters was scored by comparing the isolated letters with the graded letters on the writing scale. The poorly formed letters were marked. The slant was scored by drawing slanting lines through the letters and marking all the letters which were off slant. Spacing was scored by marking



all the letters and words which were unevenly spaced. The size of the writing was studied individually and compared with the graded samples on the writing scale. In scoring the alignment of the handwriting a ruler was used. A base line was drawn touching as many of the letters as possible. A line was also drawn along the tops of the small letters. All letters going above or below these lines were marked. The line quality of the handwriting was studied by making a letter finder. (A hole a little larger than the letter was cut in a piece of oak tag.) This is found in the Appendix, page 53. The hole of the finder was placed over each letter in turn and the letters which were illegible due to quality were marked. When all six phases were analyzed and scored an average score was obtained for the quality of the handwriting on the sixth grade samples. These scores were put into table and graph form to be used in comparing this sixth grade writing with the twelfth grade writing. A sample of sixth grade spelling list is found in the Appendix, page 47.

In order to compare the handwriting of the sixth grade with that of the twelfth grade it was necessary to build a test to be used in the twelfth grade. The writer after examining the sixth grade samples carefully built a handwriting test which included forty-nine of the fifty words which appeared on the sixth grade specimen. A mimeograph form was made to be used for the test. There were three columns of eighteen lines



each. At the top was a place for Name, Date, Age, School, Boy-Girl, and Course. This information was used in the analysis of the data. A list of the words to be used for the test was made for each teacher administering the tests. The directions were, "Please dictate the following list of words to be written by the pupils on the paper provided". At the bottom of the list of words was typed, "Please include with this list of words a sample of each pupil's daily writing". The daily samples of handwriting were used in studying comparisons of writing under testing conditions and regular every day writing. A sample of the test form and the list of words can be found in the Appendix, page 48. A sample of the daily handwriting can also be found in the Appendix, page 50.

These quality tests were analyzed individually for the same six functions as the sixth grade samples. The same procedure for scoring was followed. After an average score in quality was obtained it was put into table and graph form to be compared with the handwriting done in the sixth grade.

A comparison of speed and quality of handwriting was desired. It was necessary to build a speed test to be given to the seniors in high school. After testing different paragraphs and poems for the number of letters of the alphabet they contained and the length of time it took to copy each, it was decided to use the poem, "The Hill Road", by Eva Brinker. This poem contains 347 letters. All the letters of the alphabet are included, except j, k, m, q, and z. It was also selected







because the writer liked its thought and poetic rhythm, and because it was the correct length for a two minute test.

The poem was typed on the form to be used by the students so that each pupil would have his own sample from which to copy. The typed copy was on the same sheet with the lines provided for the writing. At the top of this form was Name, Date, Age, Boy-Girl, and Course. The time limit was two minutes. The directions were, "With your pencil copy this poem you see on your paper. Begin when I say 'Go' and stop when I say 'Stop'". A sample is found in the Appendix, page 49.

This speed test was scored using the same procedure used in the quality test. The tests were analyzed for the same six functions of handwriting. The results were recorded in graph and table form to be used for different comparisons.



## CHAPTER III

### ANALYSIS OF THE DATA

The data was analyzed to find in what ways and to what extent the degeneration in handwriting had occurred. The tests were analyzed individually for form, slant, size, spacing, line quality, and alignment.

The quality scores for grades six and twelve were compared according to I.Q.'s, Sex, Courses taken, and Left and Right-handedness.

The six phases of handwriting, form, slant, size, spacing, line quality, and alignment, were studied for the twelfth grade speed test, quality test, and daily writing.

The three twelfth grade writing samples, quality, speed, and daily writing, were compared according to the six phases of handwriting.

The quality scores derived from the sixth and twelfth grades were compared according to the same six phases of handwriting.

The Zaner-Bloser Writing Scale for Grade Six was used in the analysis. This was the handwriting system under which these students received their instruction in the elementary school.

Table I shows the comparison of Quality Scores in grades six and twelve.



Table I

## Comparison of Quality Scores in Grades 6 and 12

Grade	Number of Children			Percent Rating		
	Good	Fair	Poor	Good	Fair	Poor
6	21	21	10	40	40	20
12	3	27	22	6	52	42

Table I shows the comparison of the Quality Scores in Grades 6 and 12 by numbers of students receiving scores of Good, Fair, and Poor, and by the percent rating the above scores.

The good writers dropped from 21 (40%) in grade 6 to 3 (6%) in grade 12. The fair writers increased from 21 (40%) in grade 6 to 27 (52%) in grade 12. The poor writers increased from 10 (20%) in grade 6 to 22 (42%) in grade 12.

This shows that 21 students had good quality handwriting in grade 6. After 5 years of writing with no formal instruction, degeneration took place in the handwriting of 18 of the 21 or 86%.

Figure I shows the comparison of quality scores in grades 6 and 12.





Figure I

Comparison of Quality Scores in Grade 6 and 12

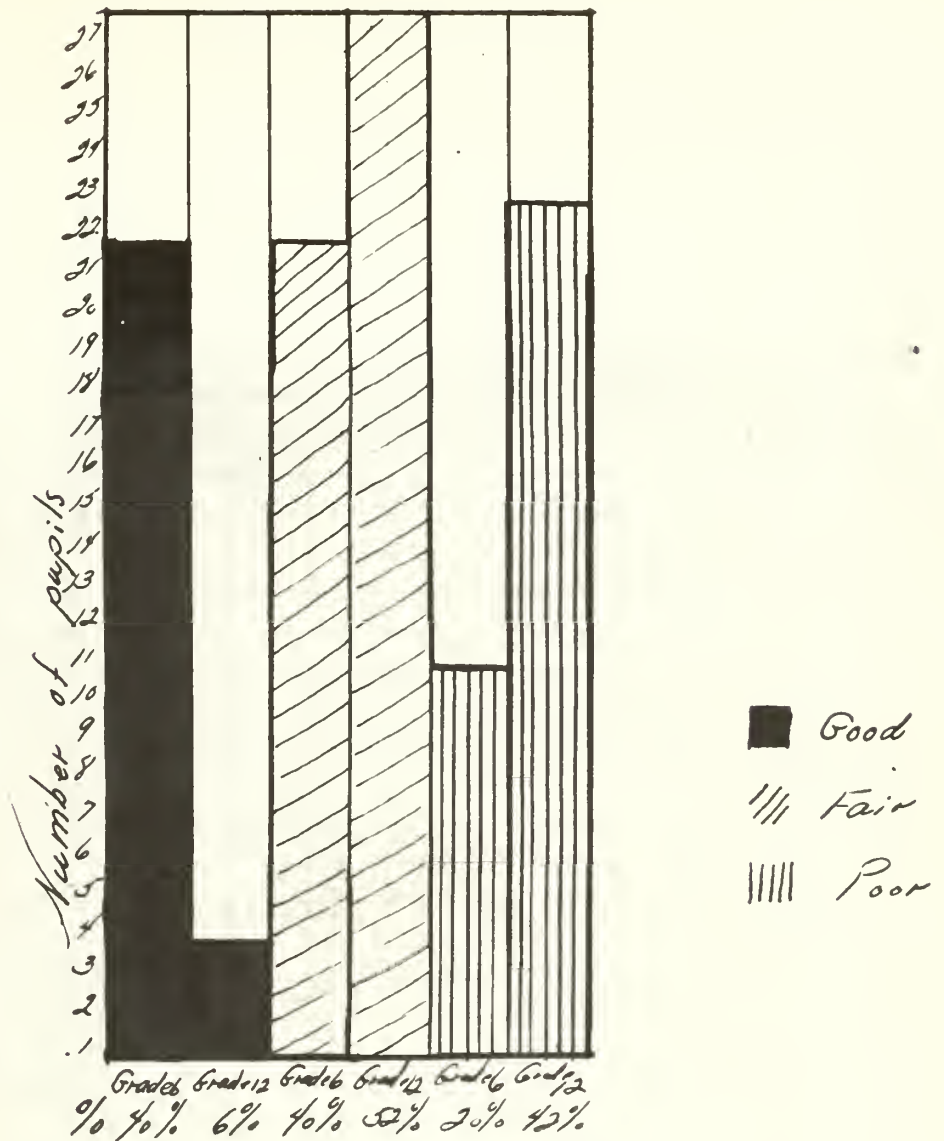


Figure I shows the comparison of quality scores in grades 6 and 12.

Good writers dropped from 21 in grade 6 to 3 in grade 12. Fair writers increased from 21 in grade 6 to 27 in grade 12. Poor writers increased from 10 in grade 6 to 22 in grade 12.



Table II

Comparison of Quality Scores According to I.Q.'s

Number of Children												
I.Q. 80-89				90-110			110-120			120-140		
Grade	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
6	1	1	1	10	9	8	6	8	3	3	2	0
%	33	33	33	37	33	30	35	41	18	60	40	0
12	0	0	3	1	17	9	1	9	7	1	1	3
%	0	0	100	4	63	33	6	53	41	20	20	60

Table II shows the comparison of the quality scores according to I.Q.'s. In the groups 90-110, 110-120, 120-140, the number of good writers decreased in the 12 grade. The fair and poor writers increased in grade 12. In the group 90-110, the good writers decreased from 10 in grade 6 to 1 in grade 12. The fair writers increased from 9 to 17. Poor writers increased from 8 to 9. In the group 110-120, good writers decreased from 6 to 1. Fair writers increased from 8 to 9. Poor writers increased from 3 to 7. In the group 120-140, the good writers decreased from 3 to 1. Fair writers increased from 2 to 1. Poor writers increased from 0 to 3. In the group 80-89, there was one good, one fair, and one poor writer in grade 6. In grade 12, all three writers scored poor.

Figure II shows the comparison of quality scores according to I.Q.'s.



Figure II

Comparison of Quality Scores According  
to I.Q.'s

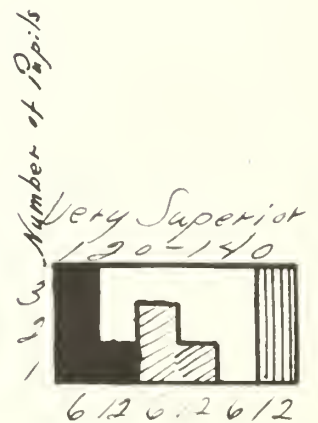
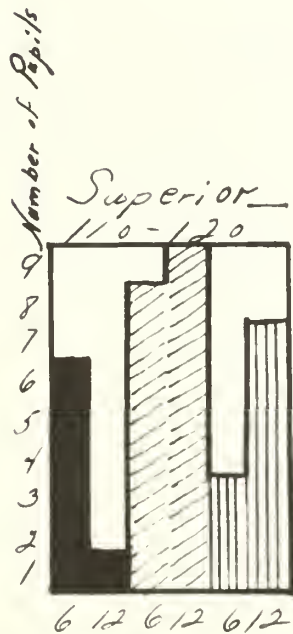
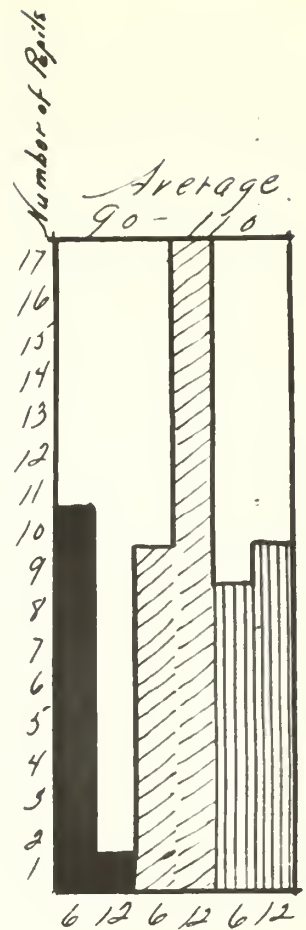
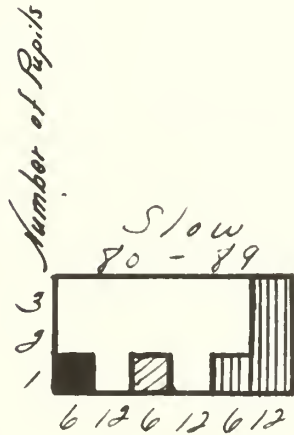
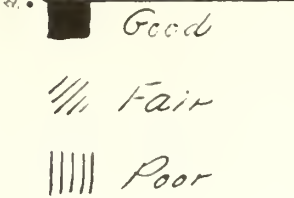


Figure II shows the comparison of quality scores according to I.Q.'s. In each of these groups- 90-110, 110-120, 120-140, the good writers decreased in grade 12. Fair writers increased and poor writers increased. In the group 80-89 there were three pupils. One scored good, one fair and one poor in grade 6. In grade 12 the poor writer remained the same and the other two dropped to the poor group.





Table III

## Comparison of Quality Scores According to Sex

Number of Pupils							Percent Rating					
Grade	Good		Fair		Poor		Good		Fair		Poor	
	G	B	G	B	G	B	G	B	G	B	G	B
6	16	5	13	8	4	6	49	26	39	42	12	32
12	2	1	20	7	11	11	6	5	61	37	33	58

Table III shows the comparison of quality scores in grade 6 and 12 according to sex. It shows the number of pupils and the percent rating.

The girls dropped from 16 good writers (49%) in grade 6 to 2 (6%) in grade 12. The boys dropped from 5 (26%) in grade 6 to 1 (5%) in grade 12.

The girls who were fair writers increased from 13 (39%) in grade 6 to 20 (61%) in grade 12. The boys decreased from 8 (42%) in grade 6 to 7 (37%) in grade 12.

Girls who were poor writers in grade 6 increased from 4 (12%) in grade 6 to 11 (33%) in grade 12. The boys increased from 6 (32%) in grade 6 to 11 (58%) in grade 12.

Figure III shows the comparison of the quality scores of handwriting in Grades 6 and 12 according to sex.



Figure III

Comparison of Quality Scores According to Sex

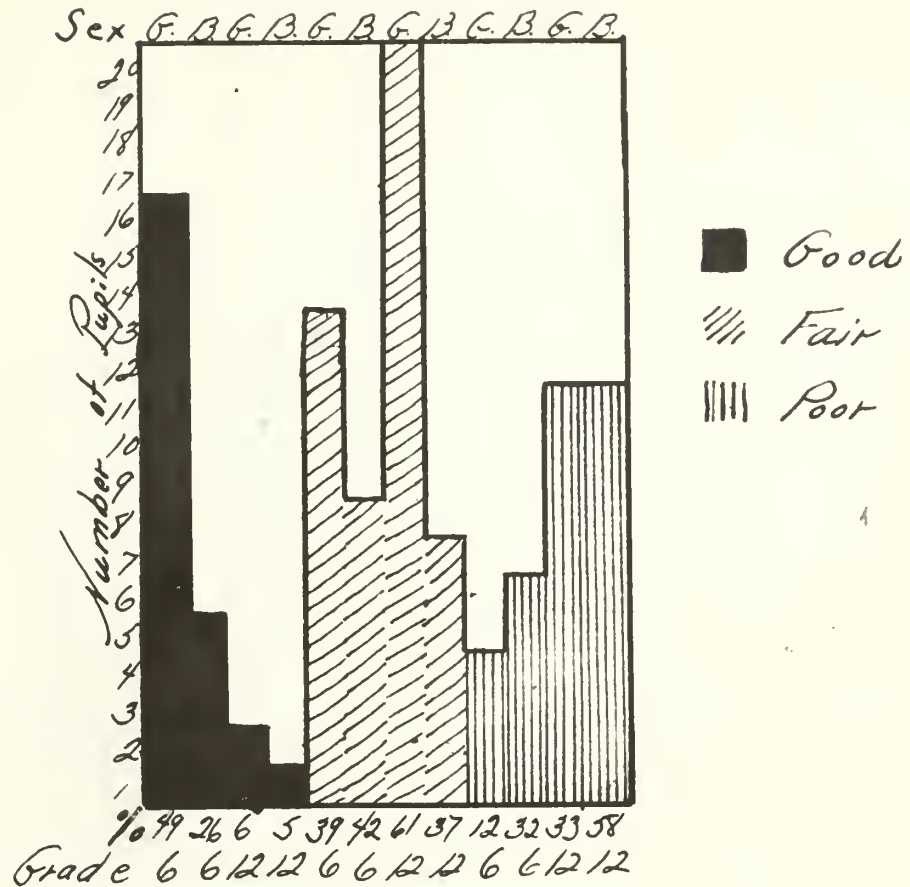


Figure III shows the comparison of quality scores of pupils in grade 6 and 12 according to sex.

The 16 girls who were good writers in grade 6 dropped to 2 in grade 12. The 5 boys who were good writers in grade 6 dropped to 1 in grade 12.

The 13 girls who were fair writers in grade 6 increased to 20 in grade 12. The 8 boys who were fair writers in grade 6 dropped to 7 in grade 12.

The 4 girls who were poor writers in grade 6 increased to 11 in grade 12. The 6 boys who were poor writers in grade 6 increased to 11 in grade 12.



Table IV

Comparison of Quality Scores According to Courses

Number of Pupils															
	Good					Fair					Poor				
Grade	Gen.	Col.	Bus.	BB	MS	Gen.	Col.	Bus.	BB	MS	Gen.	Col.	Bus.	BB	MS
6	8	4	9	0	0	8	9	4	0	0	3	2	1	1	3
%	42	27	64	0	0	42	60	29	0	0	16	13	7	100	100
12	0	2	1	0	0	11	8	8	0	0	8	5	5	1	3
%	0	13	7	0	0	58	53	57	0	0	42	33	35	100	100

Table IV shows the comparison of quality scores according to courses.

The good writers in the General Course decreased from 8 in grade 6 to 0 in grade 12. The College Course writers decreased from 4 in grade 6 to 2 in grade 12. The writers in the Business Course decreased from 9 in grade 6 to 1 in grade 12. There were no good writers in either the Boat Building or Machine Shop courses in either the sixth or the twelfth grade.

The fair writers in the General Course increased from 8 in grade 6 to 11 in grade 12. The writers in the College Course decreased from 9 in grade 6 to 8 in grade 12. The writers in the Business Course increased from 4 in grade 6 to 8 in grade 12. There were no fair writers in either the Boat Building Course or the Machine Shop Course in either the sixth or twelfth grade.

Poor writers in the General Course increased from 3 in





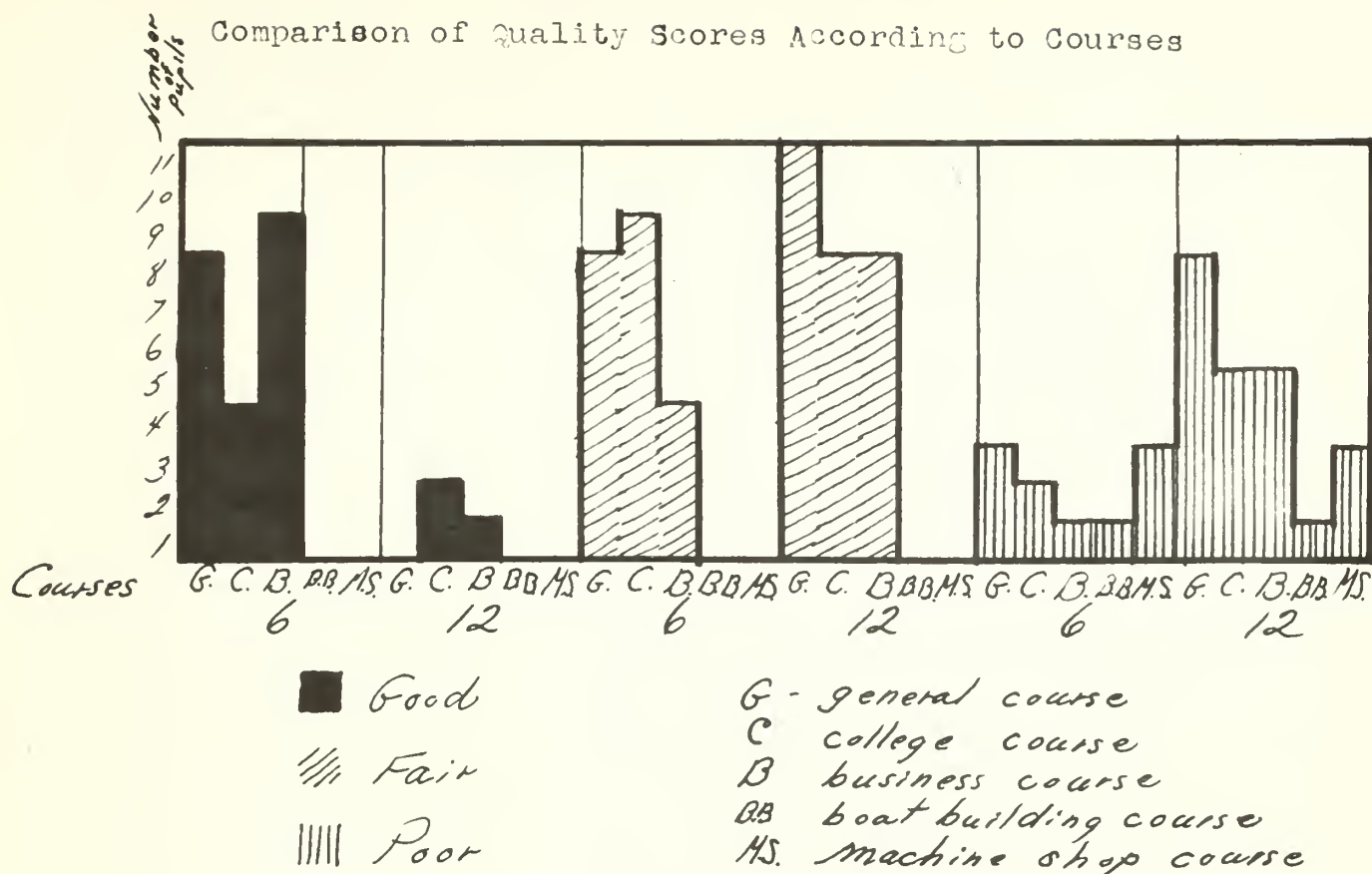
grade 6 to 8 in grade 12. The writers in the College Course increased from 2 in grade 6 to 5 in grade 12. The 1 poor writer in the Boat Building Course remained poor in grade 12. The 3 poor writers in the Machine Shop Course remained poor in grade 12.

Figure IV shows the comparison of quality scores according to courses.



Figure IV

Comparison of Quality Scores According to Courses



In the General Course the good writers decreased from 8 in grade 6 to 0 in grade 12. In the College Course they decreased from 4 in grade 6 to 2 in grade 12. The writers in the Business Course decreased from 9 in grade 6 to 1 in grade 12. There were no good writers in grade 6 or 12 in the Boat Building and the Machine Shop Courses.

Fair writers in the General Course increased from 3 in grade 6 to 11 in grade 12. The College Course writers decreased from 9 in grade 6 to 8 in grade 12. In the Business Course the writers increased from 4 in grade 6 to 8 in grade 12. There were no fair writers in either the Boat Building Course or the Machine Shop Course.

Poor writers in the General Course increased from 3 in grade 6 to 8 in grade 12. The writers in the College Course increased from 2 in grade 6 to 5 in grade 12. The writers in the Business Course increased from 1 in grade 6 to 5 in grade 12. The 1 poor writer in the Boat Building Course remained poor. The 3 writers which were rated poor in grade 6 remained poor in grade 12 in the Machine Shop Course.



Table V

Comparison of Quality Scores  
According to Left and Right-handed Writers

Number of Pupils				Percentage Rating		
Grade	Good		Fair	Poor		
	R.	L.	R.	L.	R.	L.
6	19	2	19	2	9	1
12	3	0	24	3	20	2

This table shows the comparison of quality scores in grades 6 and 12 according to left and right-handed writers.

The 19 (40%) good, right-handed writers in grade 6 decreased to 3 (6%) in grade 12. The 2 (40%) left-handed writers in grade 6 decreased to 0 (0%) in grade 12.

The 19 (40%) fair right-handed writers in grade 6 increased to 24 (51%) in grade 12. The 2 (40%) fair, left-handed writers in grade 6 increased to 3 (60%) in grade 12.

The 9 (20%) poor, right-handed writers in grade 6 increased to 20 (43%) in grade 12. The 1 (20%) left-handed writers in grade 6 increased to 2 (40%) in grade 12.

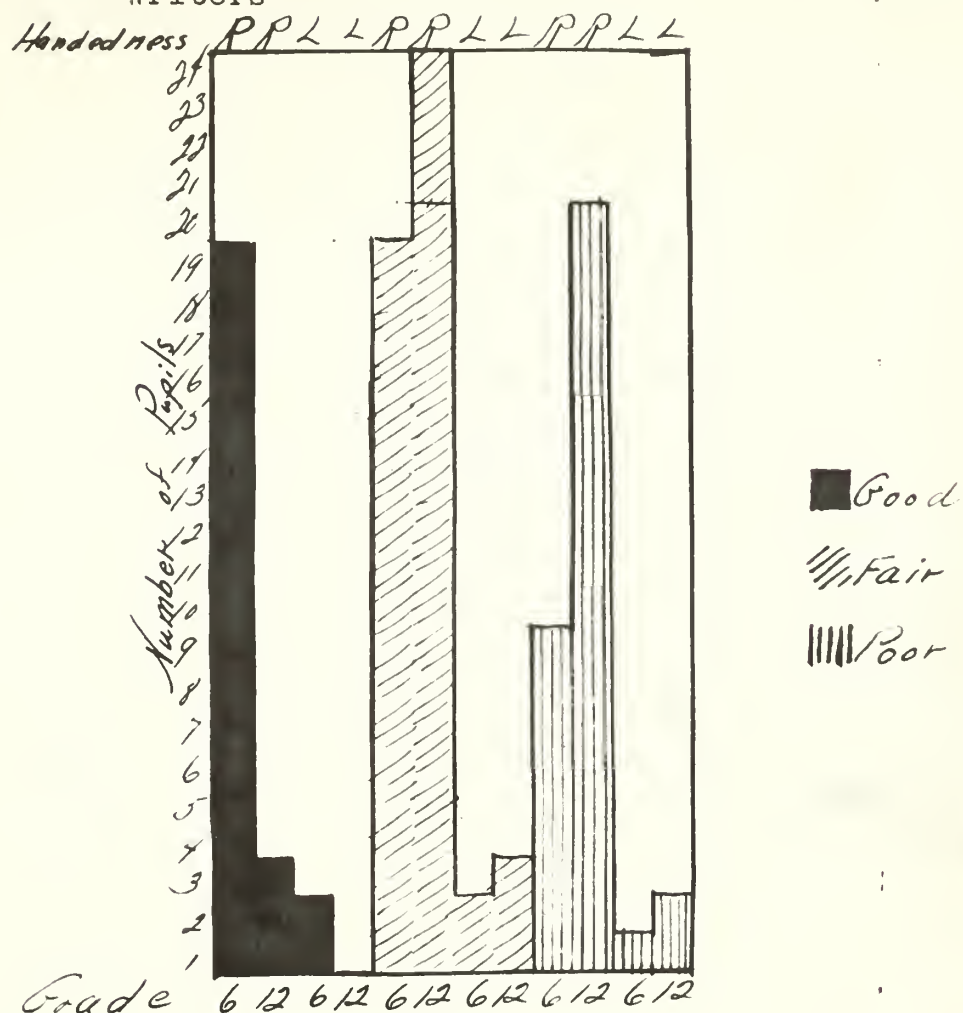
Figure V shows the comparison of quality scores in grades 6 and 12 according to left and right-handed writers.





Figure.V

Comparison of Quality Scores According to Left and Right-Handed Writers



This figure shows the comparison of quality scores in grades 6 and 12 according to left and right-handed writers.

19 good, right-handed writers in grade 6 decreased to 3 in grade 12. 2 left-handed writers decreased to 0 in grade 12.

19 fair right-handed writers in grade 6 increased to 24 in grade 12. 2 fair left-handed writers in grade 6 increased to 3 in grade 12.

9 poor right-handed writers in grade 6 increased to 20 in grade 12. 1 poor, left-handed writer in grade 6 increased to 2 in grade 12.



Table VI

Comparison of Form, Slant, Spacing, Size, Line Quality,  
Alignment in Grade 12 Speed Test

Form	Slant	Spacing	Size	Line Quality	Alignment
36 Poor	19 Poor	29 Poor	40 Poor	9 Poor	34 Poor
16 Fair	18 Fair	18 Fair	12 Fair	21 Fair	18 Fair
0 Good	15 Good	5 Good	0 Good	22 Good	0 Good

This table shows the comparison of the 6 phases of handwriting in Grade 12 Speed Test.

In the form there were 36 poor, 16 fair and 0 good.

In the slant there were 19 poor, 18 fair and 15 good.

In spacing there were 29 poor, 18 fair and 5 good. In size of writing there were 40 poor, 12 fair and 0 good. In line quality there were 9 poor, 21 fair and 22 good. In alignment there were 34 poor, 18 fair and 0 good.

The size of handwriting had the most rating poor (40), form rated next with 36 poor and alignment rated next with 34 poor.

The phase of handwriting which rated the best was line quality with only 9 poor, 21 fair and 22 good. Slant was next best with 19 poor, 18 fair and 15 good. Spacing was next with 29 poor, 18 fair and 5 good.

Figure VI shows the comparison of form, slant, spacing, size, line quality, alignment in grade 12 speed test.



**Figure VI**  
**Comparison of Form, Slant, Spacing, Size, Line Quality,**  
**Alignment in Grade 12 Speed Test**

This figure shows the comparison of the 6 different phases of handwriting in grade 12 speed test.

In form there were 36 poor, 16 fair, and 0 good. In slant there were 19 poor, 18 fair and 15 good. In spacing there were 29 poor, 18 fair, and 5 good. In size there were 40 poor, 12 fair, and 0 good. In line quality there were 9 poor, 21 fair, and 22 good. In alignment there were 34 poor, 13 fair, and 0 good.

■ Good  
 /// Fair  
 |||| Poor

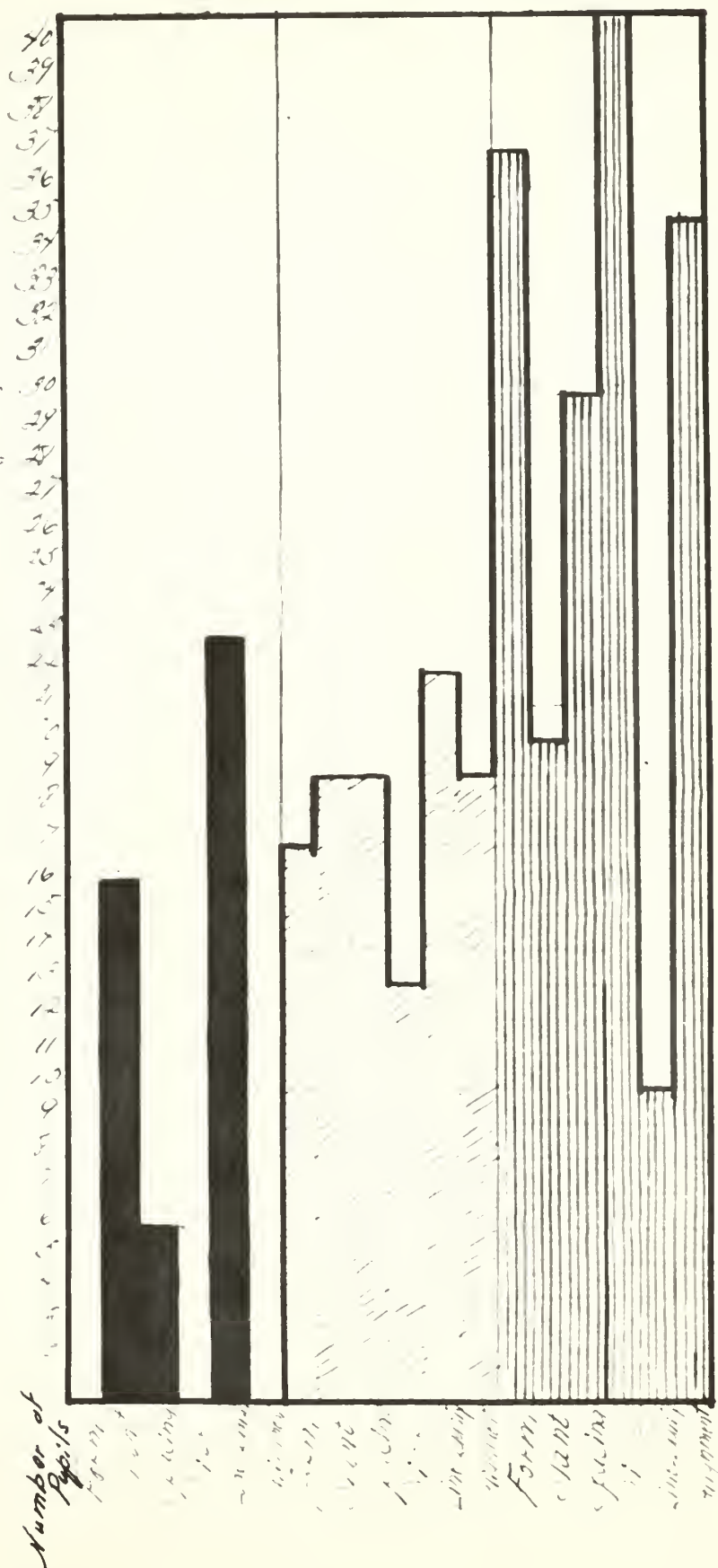






Table VII

Comparison of Six Phases of Handwriting in Grade 12  
Quality Test

Form	Slant	Spacing	Size	Line Quality	Alignment
30 Poor	16 Poor	18 Poor	35 Poor	4 Poor	23 Poor
22 Fair	17 Fair	23 Fair	14 Fair	22 Fair	26 Fair
0 Good	19 Good	6 Good	3 Good	26 Good	3 Good

This table shows the comparison of the six different phases of handwriting in grade 12 on the quality test.

In form, there were 30 poor, 22 fair, and 0 good. In slant there were 16 poor, 17 fair and 19 good. In spacing, there were 18 poor, 23 fair and 6 good. In size, there were 35 poor, 14 fair and 3 good. In line quality, there were 4 poor, 22 fair and 26 good. In alignment, there were 23 poor, 26 fair and 3 good.

Line quality rated the best of the 6 phases with only 4 poor, 22 fair and 26 good.

Size rated the poorest with 35 poor, 14 fair, and 3 good.

Figure VII shows the comparison of the six phases of handwriting in grade 12 quality test.



**Figure VII**  
**Comparison of Six Phases of Handwriting in Grade 12**  
**Quality Test**

This figure shows the comparison of the six different phases of handwriting in grade 12 on the quality test.

In form there were 30 poor, 22 fair, and 0 good. In slant there were 16 poor, 17 fair, and 19 good. In spacing there were 18 poor, 28 fair, and 6 good. In size there were 35 poor, 14 fair, and 3 good. In line quality there were 4 poor, 22 fair, and 26 good. In alignment there were 23 poor, 26 fair, and 3 good.

■ Good  
 ▨ Fair  
 ▩ Poor

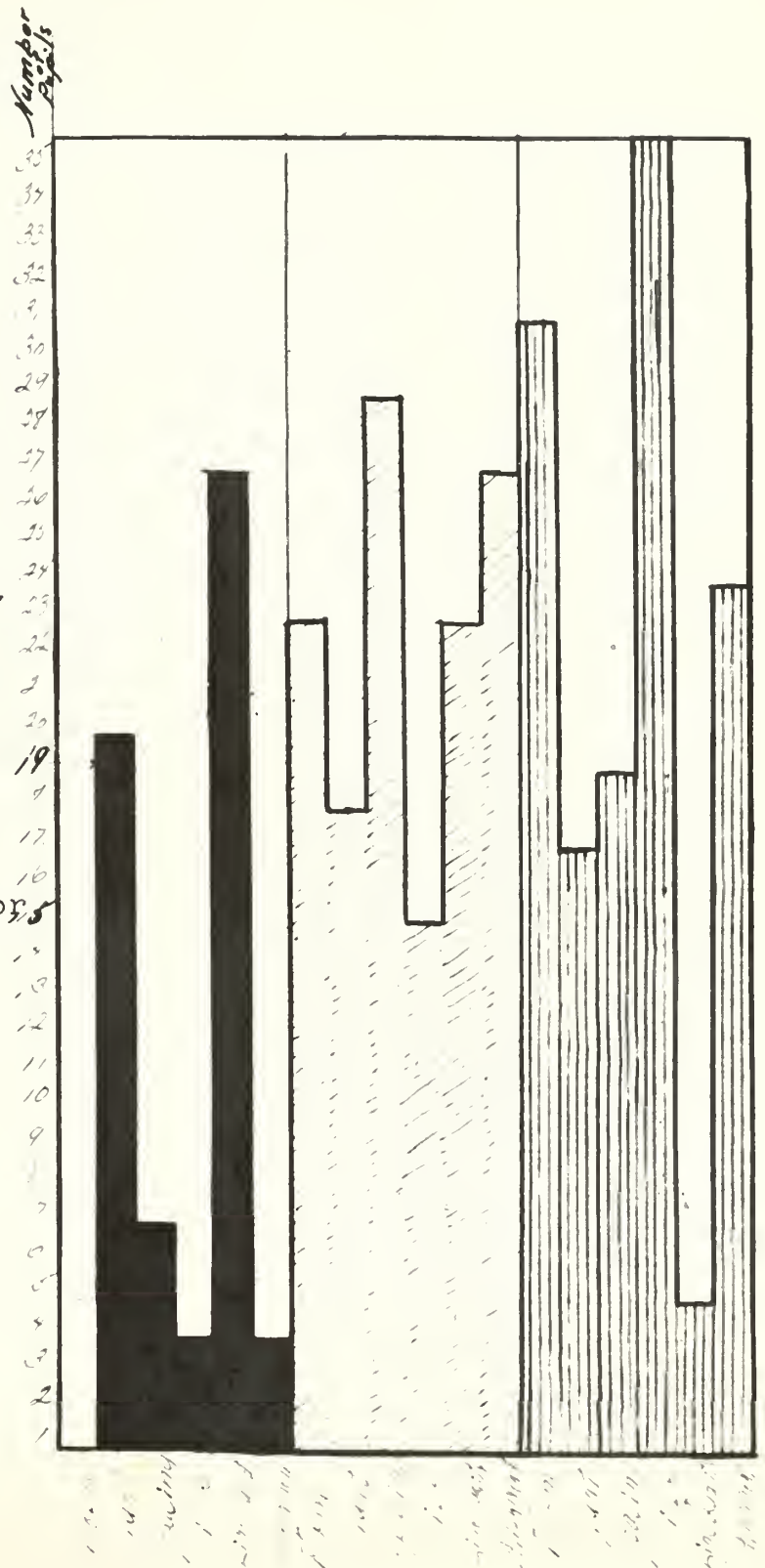




Table VIII

Comparison of Form, Slant, Spacing, Size, Line Quality,  
Alignment in Grade 12 Daily Writing

Form	Slant	Spacing	Size	Line Quality	Alignment
46 Poor	21 Poor	32 Poor	41 Poor	8 Poor	47 Poor
6 Fair	27 Fair	18 Fair	10 Fair	38 Fair	5 Fair
0 Good	4 Good	2 Good	1 Good	6 Good	0 Good

This table shows the comparison of the six different phases of handwriting in grade 12 in the daily writing.

In form there were 46 poor, 6 fair, and 0 good. In slant, there were 21 poor, 27 fair and 4 good. In spacing there were 32 poor, 18 fair, and 2 good. In size, there were 41 poor, 10 fair, and 1 good. In line quality, there were 8 poor, 38 fair, and 6 good. In alignment, there were 47 poor, 5 fair, and 0 good.

Line Quality rated the best with 3 poor, 33 fair, and 6 good. Alignment rated the lowest with 47 poor, 5 fair, and 0 good.

Figure VIII shows the comparison of form, slant, spacing, size, line quality, alignment in grade 12 daily writing.

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Figure VIII  
Comparison of Form, Slant, Spacing, Size, Line Quality,  
Alignment in Grade 12 Daily Writing

This figure shows the comparison of the six different phases of handwriting in grade 12 in daily writing.

In form there were 46 poor, 6 fair, and 0 good. In slant there were 21 poor, 27 fair, and 4 good. In spacing there were 32 poor, 18 fair, and 2 good. In size there were 41 poor, 10 fair, and 1 good. In line quality there were 8 poor, 38 fair, and 6 good. In alignment there were 47 poor, 5 fair, and 0 good.

■ Good  
/// Fair  
|||| Poor

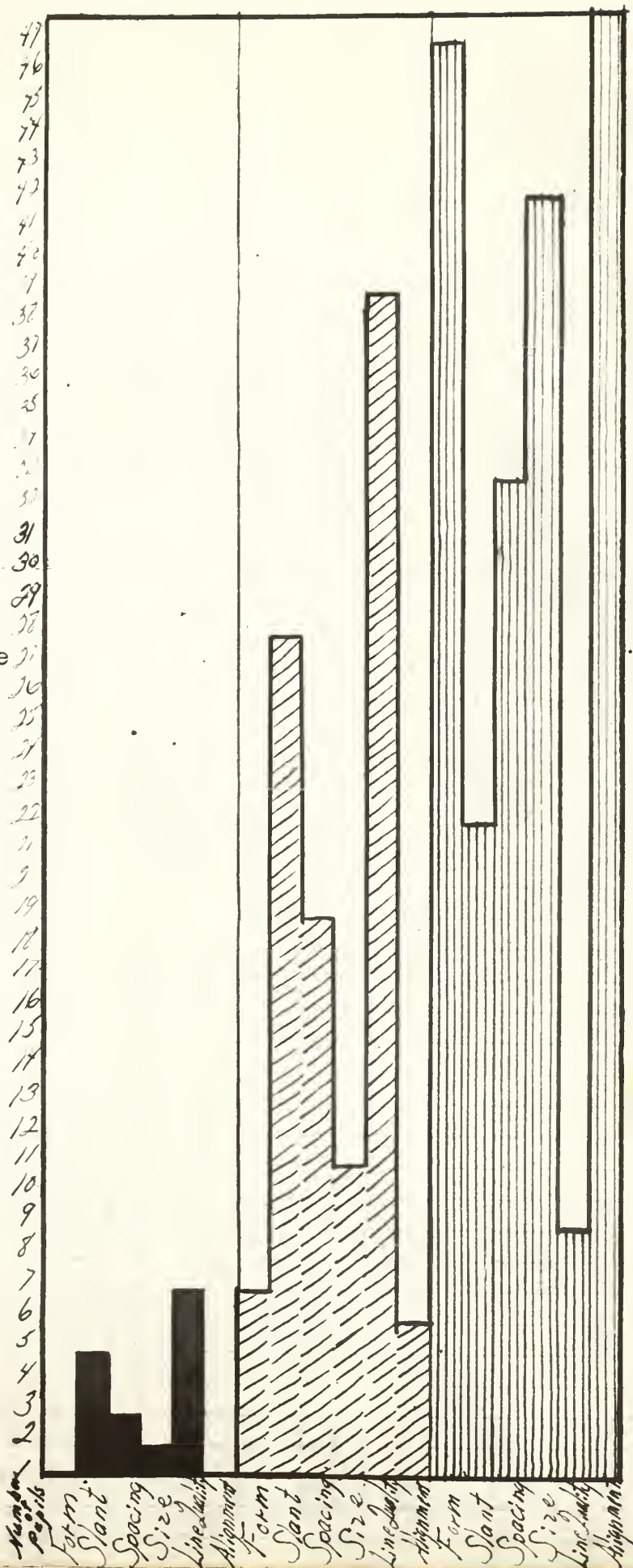




Table IX

Comparison of Quality, Speed, and Daily Writing in  
Grade 12

Quality	Speed	Daily Writing
23 Poor	34 Poor	42 Poor
26 Fair	18 Fair	10 Fair
3 Good	0 Good	0 Good

This table shows the comparison of the quality of handwriting, the speed, and the daily writing.

On the quality test, there were 23 rating poor, 26 rating fair, and 3 rating good. On the speed test, there were 34 rating poor, 18 rating fair, and 0 rating good. On the daily writing samples, there were 42 rating poor, 10 rating fair, and 0 rating good.

Figure IX shows the comparison of quality, speed and daily writing in grade 12.

Year	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010	2020
Population	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000
Area	100	150	200	250	300	350	400	450	500	550	600	650	700
Volume	10	15	20	25	30	35	40	45	50	55	60	65	70

The following table shows the population, area, and volume of the region for the years 1900 to 2020. The population is shown in thousands, the area in square miles, and the volume in cubic miles.

The population of the region has increased steadily over the years, from 1,000 in 1900 to 7,000 in 2020. The area has also increased, from 100 square miles in 1900 to 700 square miles in 2020. The volume has increased from 10 cubic miles in 1900 to 70 cubic miles in 2020.

The increase in population, area, and volume is due to the growth of the region over time. The population has grown because of the influx of people from other regions. The area has grown because of the expansion of the region's boundaries. The volume has grown because of the increase in the region's depth.

Figure IX  
Comparison of Quality, Speed, and Daily Writing, in Grade 12

This figure shows the comparison of the quality, the speed, and the daily handwriting. in grade 12.

On the quality test there were 23 poor, 26 fair, and 3 good. On the speed test there were 34 poor, 18 fair, and 0 good. On the daily writing there were 42 poor, 10 fair, and 0 good.

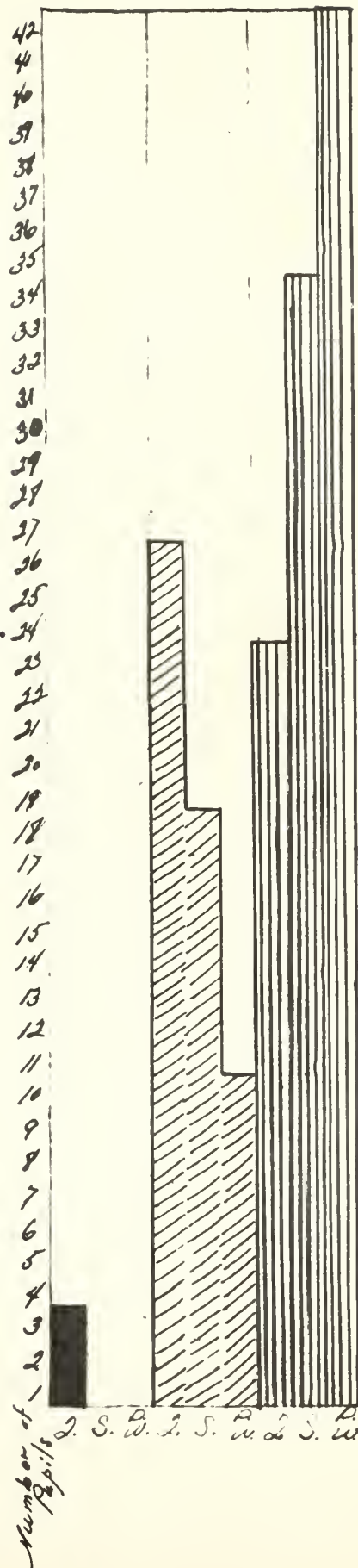
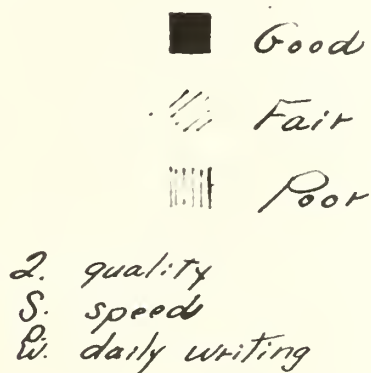






Table X

Comparison of the Six Phases of Handwriting in  
Grades 6 and 12

Grade	Poor						Fair						Good					
	*F	S	S	S	LQ	A	F	S	S	S	LQ	A	F	S	S	S	LQ	A
6	8	9	3	13	8	10	24	25	27	23	21	21	20	18	22	16	23	21
12	30	16	18	35	4	23	22	17	28	14	22	26	0	19	6	3	26	3

\*F - Form   S - Slant   S - Spacing   S - Size   LQ - Line Quality  
A - Alignment

This table shows the comparison of the six phases of handwriting in grades 6 and 12.

In Form, there were 8 poor in grade 6 and 30 in grade 12.  
In Slant, there were 9 poor in grade 6, and 16 poor in grade 12.  
In Spacing, there were 3 poor in grade 6, and 18 in grade 12.  
In Size, there were 13 poor in grade 6, and 35 in grade 12. In  
Line Quality, there were 8 poor in grade 6, and 4 in grade 12.  
In Alignment, there were 10 poor in grade 6, and 23 in grade 12.

In Form, there were 24 fair in grade 6, and 22 in grade 12.  
In Slant, there were 25 fair in grade 6, and 17 in grade 12. In  
Spacing, there were 27 fair in grade 6, and 28 in grade 12. In  
Line Quality, there were 21 fair in grade 6, and 22 in grade 12.  
In Alignment, there were 21 fair in grade 6, and 26 in grade 12.

In Form, there were 20 good in grade 6, and 0 in grade 12.  
In Slant, there were 18 good in grade 6, and 19 in grade 12.



In Spacing, there were 22 good in grade 6, and 6 in grade 12. In Size, there were 16 good in grade 6, and 3 in grade 12. In Line Quality, there were 23 good in grade 6, and 26 in grade 12. In Alignment, there were 21 good in grade 6, and 3 in grade 12.

Figure X shows the comparison of the six phases of handwriting in grades 6 and 12.

1. The first part of the document is a letter from the President of the United States to the Congress, dated January 1, 1801. It is a very important document, as it is the first official communication of the new administration. The President, James Madison, discusses the state of the Union and the challenges facing the new government. He mentions the need for a strong executive branch and the importance of maintaining the principles of the Constitution.

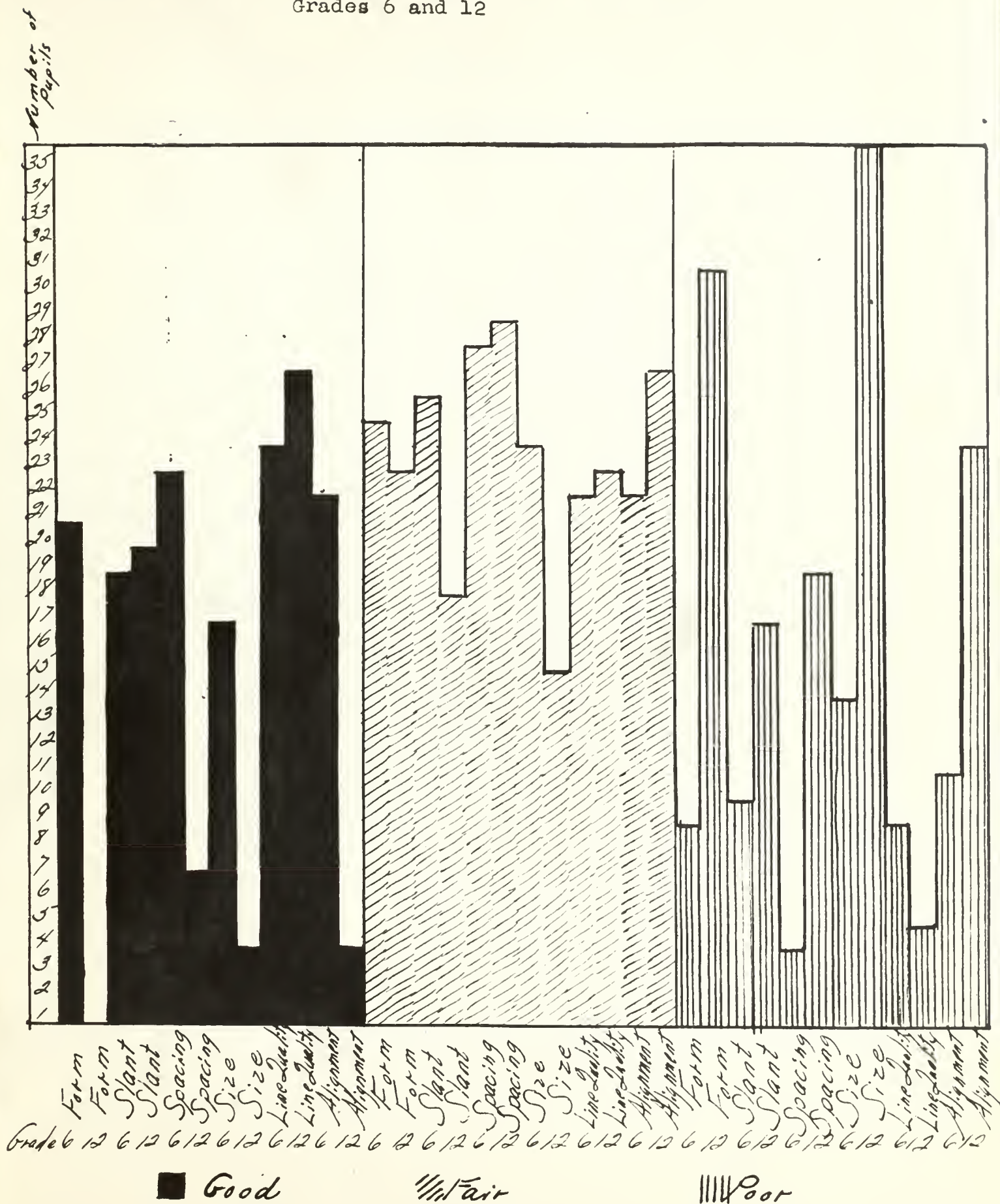
2. The second part of the document is a report from the Secretary of the Treasury, Alexander Hamilton, dated January 1, 1801. It is a very important document, as it is the first official communication of the new administration. The Secretary discusses the state of the Treasury and the challenges facing the new government. He mentions the need for a strong financial system and the importance of maintaining the principles of the Constitution.

3. The third part of the document is a report from the Secretary of the Navy, Robert Smith, dated January 1, 1801. It is a very important document, as it is the first official communication of the new administration. The Secretary discusses the state of the Navy and the challenges facing the new government. He mentions the need for a strong naval force and the importance of maintaining the principles of the Constitution.

4. The fourth part of the document is a report from the Secretary of the War, Henry Knox, dated January 1, 1801. It is a very important document, as it is the first official communication of the new administration. The Secretary discusses the state of the War and the challenges facing the new government. He mentions the need for a strong military force and the importance of maintaining the principles of the Constitution.

5. The fifth part of the document is a report from the Secretary of the Interior, Thomas Mifflin, dated January 1, 1801. It is a very important document, as it is the first official communication of the new administration. The Secretary discusses the state of the Interior and the challenges facing the new government. He mentions the need for a strong land force and the importance of maintaining the principles of the Constitution.

Figure X  
Comparison of the Six Phases of Handwriting in  
Grades 6 and 12







## Figure X

Comparison of the Six Phases of Handwriting in  
Grades 6 and 12

This figure shows the comparison of the six phases of handwriting in grades 6 and 12.

In Form, there were 8 poor in grade 6, and 30 in grade 12. In Slant, there were 9 poor in grade 6, and 16 in grade 12. In Spacing, there were 3 poor in grade 6, and 18 in grade 12. In Size, there were 13 poor in grade 6, and 35 in grade 12. In Line Quality, there were 8 poor in grade 6, and 4 in grade 12. In Alignment, there were 10 poor in grade 6, and 23 in grade 12.

In Form, there were 24 fair in grade 6, and 22 in grade 12. In Slant, there were 25 fair in grade 6, and 17 in grade 12. In Spacing, there were 27 fair in grade 6, and 28 in grade 12. In Size, there were 23 fair in grade 6, and 14 in grade 12. In Line Quality, there were 21 fair in grade 6, and 22 in grade 12. In Alignment, there were 21 fair in grade 6, and 26 in grade 12.

In Form, there were 20 good in grade 6, and 0 in grade 12. In Slant, there were 18 good in grade 6, and 19 in grade 12. In Spacing, there were 22 good in grade 6, and 6 in grade 12. In Size, there were 16 good in grade 6, and 3 in grade 12. In Line Quality, there were 23 good in grade 6, and 26 in grade 12. In Alignment, there were 21 in grade 6, and 3 in grade 12.



## CHAPTER IV

### SUMMARY AND CONCLUSIONS

The purpose of this study was to determine in what ways and to what extent handwriting degenerated after formal instruction had been discontinued.

Tests were constructed in order to test six different phases of handwriting in quality and speed in grade twelve. Daily handwriting samples from these students were obtained. Samples of writing done by these students when they were in grade six were located. The tests on quality and speed were given to the high school seniors in October 13, 1944.

All the writing samples were scored by studying the six different phases, form, slant, spacing, size, line quality, and alignment. The sixth grade writing was compared with the twelfth grade writing according to I.Q.'s, Sex, Courses Taken, and Left and Right-handedness.

#### Conclusions.

##### A. Comparing the Quality of Handwriting in Grade Six and Twelve.

It was found that the sixth grade writing rated superior to the twelfth grade writing. There were twenty-one good writers in grade six, and three good writers in grade twelve. Degeneration took place in the handwriting of eighteen of the twenty-one good sixth grade writers or 86%. There were 12



more poor writers in grade twelve than in grade six. There were 21 fair writers in grade six and 27 in grade twelve. There was little change in the number of fair writers.

#### B. I. Q.'s

In comparing the quality scores of the sixth grade and the twelfth grade according to I.Q.'s, it seemed evident that the I.Q. did not affect the quality of handwriting. Each group degenerated about equally.

In grade six in the slow group, 80-90, there were 33% good writers, in the average group, 90-110, there were 37% good writers, in the superior group, 110-120, there were 35% good writers, in the very superior group, 120-140, there were 60% good writers. The very superior group had the most good writers in the sixth grade.

In the sixth grade there were 33% poor writers in the slow group, 30% poor writers in the average group, 18% poor writers in the superior group, and no poor writers in the very superior group.

In grade twelve, there were no good writers in the slow group, 4% good writers in the average group, 6% good writers in the superior group, and 20% good writers in the very superior group. In grade twelve, the very superior group had the most good writers.

In grade twelve, there were 100% poor writers in the slow group, 33% poor writers in the average group, 41% in the

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superior group, and 60% in the very superior group.

The slow group and the very superior group had more poor writers in grade twelve than the other two groups.

The very superior group had the greatest drop in good writers. There were 60% good writers in grade six, and 20% good writers in grade twelve, a drop of 40%.

#### C. Sex Differences

According to the results obtained on the quality tests in grade six and grade twelve, the girls rated superior to the boys. The girls in grade six rated 49% good writers, and the boys 26%. The girls rated 39% fair writers and boys 42%. The girls rated 12% poor writers and the boys 32%.

On the grade twelve quality test, the girls rated 6% good writers and the boys 5%. The girls rated 61% fair writers, and the boys 37%. The girls rated 33% poor writers, and the boys 58%.

#### D. Courses Taken

After grouping the handwriting samples according to the five courses given in the high school, it was found that the students in the Business Course had the greatest number of good writers on the sixth grade samples with 64%. The College course students had the greatest number of good writers on the grade twelve tests with 13%.

The good writers in the Business Course dropped from 64% in grade six to 7% in grade twelve. This was the greatest drop.

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The three students in the Machine Shop Course rated poor in both grade six and grade twelve. The one student in the Boat Building Course rated poor in both grades.

The students in the College Course who rated good in grade six (27%) dropped to 13% in grade twelve. This was a drop of 14%. There weren't as many cases of degeneration in this group as there were in the other four groups.

According to this analysis, the handwriting of the students in the College Course showed the least amount of degeneration.

E. Left and Right-Handed Writers.

According to this study, there was very little difference in the amount of degeneration in the handwriting of the left and right-handed writers. In grade six, there were 40% good left and right-handed writers, 40% fair left-handed and right-handed writers, and 20% poor left-handed and right-handed writers.

The good right-handed writers showed a drop of 34% in grade twelve and the good left-handed writers showed a drop of 40%. The fair right-handed writers showed an increase of 11% in grade twelve and the fair left-handed writers showed an increase of 20% in grade twelve. The poor right-handed writers showed an increase of 23% in grade twelve and the poor left-handed writers showed an increase of 20% in grade twelve.

F. Comparing Form, Slant, Spacing, Size, Line Quality, and Alignment in Grade Twelve Speed Test.

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PHYSICAL CHEMISTRY

LECTURE NOTES

BY

PROFESSOR

JOHN D. MATYJKA

CHICAGO, ILLINOIS

1960

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In analyzing these six phases of handwriting in the twelfth grade speed test, it was found that the line quality and the slant of the handwriting were the two best phases.

Twenty-two writers out of fifty-two had good line quality and fifteen writers had good slant.

The size and the form of the writing were the poorest phases in the grade twelve speed test. There were forty out of fifty-two writers showing poor size of handwriting and thirty-six showing poor form in handwriting.

G. Comparing Six Phases of Handwriting in the Grade Twelve Quality Test.

The results of this quality test showed that the best phases of handwriting were line quality and slant.

There were twenty-six writers out of fifty-two who showed good line quality. There were nineteen writers who showed good slant.

The size and form of the handwriting were the two poorest phases in this test. There were thirty-five writers who showed poor size in handwriting. There were thirty who showed poor form in handwriting.

H. Comparing Six Phases of Handwriting in Grade Twelve Daily Writing.

In studying the daily writing of the twelfth grade writers, it was found that the line quality and the slant of the handwriting were the two best phases. There were six writers who showed good line quality, and there were four







writers who showed good slant in writing. Because the daily writing samples were the poorest set of handwriting samples, there were few cases which rated good in any of the six phases studied. This would indicate that attitude toward writing and purpose has a definite influence on the quality of the handwriting.

The alignment, form, and size of handwriting were the three poorest phases shown on the daily writing. There were forty-seven writers who showed poor alignment, forty-six who showed poor form, and forty-one who showed poor size of handwriting.

I. Comparison of Quality, Speed, and Daily Writing in Grade Twelve.

In comparing the three different writing samples used in grade twelve, it was found that there were more writers rating good on the quality test than the other two samples. There were no students who showed good quality of handwriting on either the speed test or the daily writing samples.

The daily writing samples had the most students who rated poor. There were forty-two out of fifty-two who showed poor quality of handwriting on these samples.

There were thirty-four writers showing poor quality on the speed tests.

There were twenty-three writers showing poor quality of handwriting on the quality test.

This shows that attitude toward handwriting has a definite



influence on the results obtained.

J. Comparing the Six Phases of Handwriting in Grade Six and Grade Twelve.

The quality of the sixth grade handwriting was analyzed according to the six different phases and compared with the quality of the handwriting in the twelfth grade.

It was found that in the sixth grade writing the line quality, spacing, and alignment were the three best phases. There were twenty-three writers who showed good line quality, twenty-two who showed good spacing, and twenty-one who showed good alignment.

In the grade twelve handwriting, the line quality and the slant were the two best phases. There were twenty-six writers who showed good line quality and nineteen who showed good slant.

This indicates that from the sixth grade to the twelfth grade the line quality of the handwriting remained about the same while the alignment dropped from twenty-one showing good in grade six to three in grade twelve.

The spacing of the handwriting dropped from twenty-two good in grade six to six in grade twelve.

There was an increase of one in slant in grade twelve. There were eighteen showing good slant in grade six, and nineteen in grade twelve.

The form of the handwriting dropped from twenty good in



grade six to none in grade twelve.

This analysis indicates that there was definite degeneration in the form, spacing, size, and alignment of the handwriting after five years during which there was no formal instruction in handwriting. The line quality and the slant of the handwriting were the two phases which seemed to have remained the same.

1. The first part of the report is a general  
introduction to the subject of the study.  
It is followed by a description of the  
methodology used in the study.  
The third part of the report is a  
discussion of the results of the study.  
The final part of the report is a  
conclusion and a list of references.



## CHAPTER V

### SUGGESTIONS FOR FURTHER RESEARCH

I. Problems suggested from analysis of the data in this study:

1. To study not only quality of handwriting in grades six and twelve but to study comparisons of speed and daily writing in both grades after a period of five years.

2. To study the degeneration of handwriting using a greater number of cases.

3. To study the degeneration of handwriting comparing manuscript and cursive writing.

4. To study the styles of handwriting developed by high school pupils.

5. To study the causes of degeneration in handwriting.

6. To study pupils' attitudes toward handwriting in connection with results obtained.

7. To study the degeneration of the handwriting of high school students who have had formal instruction since grade six and compare the results with the writing of students who have had no formal instruction since grade six.

THEORY OF THE EARTH

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# Sixth Grade Writing Sample

Group: Han: Inter. Compl.: B

## TEST 9. SPELLING

- |                  |                   |
|------------------|-------------------|
| 1. mouth —       | 26. neighbor —    |
| 2. wrote —       | 27. different —   |
| 3. wore —        | 28. material —    |
| 4. since —       | 29. practicing 0  |
| 5. kept —        | 30. stool —       |
| 6. limb —        | 31. journal —     |
| 7. sore —        | 32. celebrate —   |
| 8. tried —       | 33. sandwich —    |
| 9. serve —       | 34. excellent 0   |
| 10. coffee —     | 35. anxious —     |
| 11. breakfast —  | 36. patients 0    |
| 12. sole 0       | 37. legislation 0 |
| 13. flutter —    | 38. chocolate 0   |
| 14. circus —     | 39. noteare 0     |
| 15. drown —      | 40. necessary 0   |
| 16. remember —   | 41. judgement 0   |
| 17. garage —     | 42. immediate 0   |
| 18. picked 0     | 43. junior 0      |
| 19. promised —   | 44. recommend 0   |
| 20. beauty —     | 45. vulgar 0      |
| 21. loose —      | 46. quality 0     |
| 22. library —    | 47. catalog 0     |
| 23. principals 0 | 48. up with 0     |
| 24. proper 0     | 49. agreement 0   |
| 25. sent 0       | 50. desire —      |





Quality Test Grade  
Twelve



2

Name E. J. Parker Date Oct 13, 1894  
 Age 17 School constituted Day School  
 Course 12

1. <u>white</u>	20. <u>beauty</u>	31. <u>new</u>
2. <u>white</u>	21. <u>rose</u>	41. <u>indigo</u>
3. <u>white</u>	22. <u>blue</u>	42. <u>indigo</u>
4. <u>white</u>	23. <u>purple</u>	43. <u>indigo</u>
5. <u>white</u>	24. <u>purple</u>	44. <u>indigo</u>
6. <u>white</u>	25. <u>purple</u>	45. <u>indigo</u>
7. <u>white</u>	26. <u>purple</u>	46. <u>indigo</u>
8. <u>white</u>	27. <u>purple</u>	47. <u>indigo</u>
9. <u>white</u>	28. <u>purple</u>	48. <u>indigo</u>
10. <u>white</u>	29. <u>purple</u>	49. <u>indigo</u>
11. <u>white</u>	30. <u>purple</u>	50. <u>indigo</u>
12. <u>white</u>	31. <u>purple</u>	51. <u>indigo</u>
13. <u>white</u>	32. <u>purple</u>	52. <u>indigo</u>
14. <u>white</u>	33. <u>purple</u>	53. <u>indigo</u>
15. <u>white</u>	34. <u>purple</u>	54. <u>indigo</u>
16. <u>white</u>	35. <u>purple</u>	55. <u>indigo</u>
17. <u>white</u>	36. <u>purple</u>	56. <u>indigo</u>
18. <u>white</u>	37. <u>purple</u>	57. <u>indigo</u>

# THE HISTORY OF THE

... ..  
... ..  
... ..  
... ..  
... ..  
... ..  
... ..

Speed Test Grade  
Twelve





2

Name Lilly Brown Date Oct. 13, 1944  
 Age 16 School Bar. table High Girl ☒ Boy ☐  
 Course 12 Business

117

The hill road is a thing of beauty now  
 Patches of sun deep shade  
 And in the crystal light  
 Each branch hangs heavy with a load of white  
 I find the road of life is like that too  
 Often a patch of sun  
 Beside deep shadow lies  
 And beauty is all around for heedful eyes  
 Ahead the road drops down and out of sight  
 But there will be I know  
 Shadow and sunlight still  
 And God's care though the road be valley or hill

The hill road is a thing of beauty now  
 Patches of sun deep shade  
 And in the crystal light  
 Each branch hangs heavy with a load of white  
 I find the road of life is like that too  
 Often a patch of sun  
 Beside deep shadow lies  
 And beauty is all around for heedful eyes

Fair form fair size  
 " slant good line gentle  
 " spacing just a ligament

.....

.....

.....

.....

.....

.....

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*Daily Writing Sample*  
*Grade Twelve*



3

Oxford English

Ordinarily a group of properly related sentences that develop a single topic effectively. In its structure and the relationship of its parts a paragraph resembles a tree. The trunk corresponds to the single topic or the central idea. The branches and the root which are also essential parts of the tree represent the subordinate detail which are closely related to the topic and help develop it.

A paragraph is then and so

Form - poor

Style - poor

Spacing - poor

Size - poor

Line quality - fair

Symmetry - poor





show.  
Your  
made  
Mother  
Father  
loving  
progress  
writing  
Parkersburg

Good

Handwriting  
Scale for  
Grade Six



show  
 Your  
 made  
 Mother  
 Father  
 loving  
 progress  
 writing  
 Parkersburg

Good

Chicago, Ill.  
 May 24, 19 -

Dear Father and Mother,  
 I am writing to show you  
 what progress I have made  
 in handwriting this year.

Your loving daughter  
 Inez Mayer

Fair



show.  
 Your  
 made  
 Mother  
 Father  
 loving  
 progress  
 writing  
 Parkersburg

Good

Chicago, Ill.

May 24, 19

Dear Father and Mother  
 I am writing to show  
 you what progress I  
 have made in  
 handwriting this year.

Your loving son,  
 Robert Burrell

Poor





# Chart

Handwriting Faults and How  
to Correct Them





# HANDWRITING FAULTS AND HOW TO CORRECT THEM

Prepared by The Zaner-Bloser Staff

This chart is an amplification of the general elements such as slant, speed, alignment, quality of line, size of writing, spacing, letter formation and should be an aid in determining the causes of the weaknesses.

Diagnosis is not an end in itself, but rather a starting point for instruction, which should aim to remedy any difficulties revealed by the study.

## FORM

Rules for Safety

1. Do not play in the street. Play on the sidewalk in the yard, park or field.
2. Do not cross the street in the middle of the block.
3. Always look both ways before crossing the street.
4. Do not take chances! Be careful!

A B C D E F G H I J K L M  
N O P Q R S T U V W X Y Z

1 2 3 4 5 6 7 8 9 0  
a b c d e f g h i j k l m  
n o p q r s t u v w x y z

The correct formation of each individual letter, or part of a letter in a word or sentence makes for good legible handwriting. The perception of the correct form is a very important guide to intelligent practice, but it is no substitute for practice.

Inconsistency of letter forms

The inconsistency of letter forms is of particular interest for it calls into play the full resources of the instructor to suggest helpful solutions after the diagnosis has been made. Note the underscored parts that are inconsistent and poorly formed.

Habitual defective formation

Habitual defective formation is often more easily corrected after the diagnosis. Concentration during practice on the habitual defective form along with correct perception secures the desired results. Note the defective parts of the above.

Upper loops too small

Upper loops too tall

Upper loops too short

Upper loops too long

The correct perception of the upper loop letters along with some intensive practice should remedy the habitual defective formation shown in the four lines above.

## HOW TO TEST LEGIBILITY

illegible e e e

Make a letter finder by cutting a hole a little larger than the letter in a piece of cardboard. Place the hole of this finder over each letter in turn and mark the letters which are illegible. Have the pupils practice these letters separately, then write the word again and test as before.

## SPEED

Form and speed are closely integrated, and should be developed together in such a way that neither suffers at the expense of the other.

The standard speeds for the various grades as shown on Dr. Frank N. Freeman's Measuring Scales are as follows:

Grade 1—25 letters per minute	Grade 4—50 letters per minute
Grade 2—30 letters per minute	Grade 5—60 letters per minute
Grade 3—45 letters per minute	Grade 6—65 letters per minute
Grades 7-8-9—75 letters per minute	

## HOW TO TEST FOR SPEED

Have the pupil write the copy from his writing book as many times as he can and as well as he can in exactly two minutes. The teachers should keep track of the time with a watch. At the end of the two minutes, have the pupil count the number of letters on his paper. To estimate which pupils write too fast and which too slow, compare their speed with the standard speed.

A good way to use the chart is to compare the specimen with each section and pick out one outstanding weakness. Return to the writing book and find out how to correct this error.

## SLANT

Acceptable slant

Slant should be regular. It is usually not difficult to correct irregular slant when the essentials of good writing are maintained.

Keep the letters in your writing the same slant like these letters. Do not let the letters have different slants like this.

The copy above is easily interpreted. Study it carefully.

Changing slant

Changing slant is usually corrected by consistently taking a uniform position of the hand, arm and body and developing a uniform style of movement. Make all down strokes toward the center of the body.

Extreme forward slant

Extreme backward slant

Vertical writing

The extreme forward slant and extreme backward slant and vertical writing are usually due to the position of the paper.

If the slant is too great, the paper is tilted too much. If the writing is too vertical, the paper is too upright and if the slant is backward, the paper is tilted the wrong direction.

## HOW TO TEST SLANT

correct slant incorrect slant

Draw slanting lines through the letters and mark all letters which are off slant.

## SPACING

The spaces between letters and words should be about like this.

This space between words is too wide. This is too close. These words are hard to read.

This space between the letters is too wide. These letters are crowded together too much.

The right spacing is easiest to write and looks best.

Good spacing is necessary to make writing legible. Some writing which is otherwise fairly good may be made very hard to read by too much crowding between letters, lines or between words. Study these copies.

These lines are too close together. The loop letters cross each other and run too close to the letters of the line above and below. Such writing is hard to read.

These lines are far enough apart to be easily read. The words are distinct and the loop letters do not cross each other.

Notice how difficult it is to read crowded lines while the correctly spaced writing is plain and legible.

## HOW TO TEST FOR SPACING

correct spacing incorrect spacing

Begin each new word in a sentence directly under the ending stroke of the preceding word. Place the paper in front of you and mark all letters and words which are unevenly spaced. A good plan to overcome faults in spacing is to increase or decrease the space between all letters and try to keep the space between the letters even.

Then practice it intelligently to overcome the fault. Repeated comparisons with the writing book and this chart will show what improvement is being made. Copies of this chart may be obtained from the Zaner-Bloser Company for 25c each.

## SIZE

Comparative size of letters

The correct size and comparative size of letters is shown above. Note particularly the size of Capital C, small m, small t and small l.

The important thing to keep in mind regarding size is uniformity.

Each individual will no doubt vary the size of his writing slightly but as long as it is uniform, (and not too small) it should not be criticised too severely.

Unevenness of size

The unevenness of size in writing is an outstanding weakness. Every effort should be made to maintain uniform size.

Extremely large size

Extremely small size

Decreasing size

Extremely large or small size and decreasing size are usually habitual defects and can easily be corrected; first, by breaking up the bad habit and then, by the correct formation of the new one.

Keep the same kind of letters all the same size like these letters. Do not make some letters large and some small like this.

The three lines above are self explanatory. Study them individually as you compare your work with this chart.

## HOW TO TEST ALIGNMENT

correct alignment incorrect alignment

Alignment and size are closely integrated and should be studied together.

Use a ruler (a diagnostic ruler is best) and draw a base line touching as many of the letters as possible. Also draw a line along the tops of the small letters. Mark the letters above or below these lines.

## HOW TO TEST SIZE OF LETTERS

Comparative size of letters

Draw lines along the tops of the letters.

Remember the minimum letters, i, u, v, etc., are  $\frac{1}{4}$  space high; d, t, p are  $\frac{1}{2}$  space; capitals and l, h, k, b, d, are  $\frac{3}{4}$  space high. All the lower loop letters extend  $\frac{1}{4}$  space below the line.

## LINE QUALITY

"Intelligent Practice Makes Perfect."

We learn by trying over and over again. Each time we try to do a little better.

The above represents good quality of line.

Line quality is of much importance to legibility, for when lines are too thick the parts of the letters run together and when lines are too thin they become skippy and hard to read.

A smooth distinct line is pleasing and legible.

This line is too light. It is hard to read.

This line is too heavy. Too much pressure is used.

This line is jerky and uneven. It shows that the writing was done with a cramped movement.

Lines that are too heavy indicate, as a rule, too much pressure on the pen. Kinky lines indicate the need for more practice on form and ease or for a new pen point.

Extreme heaviness Extreme lightness

Extreme heaviness may be due to a bad pen or too much pressure, or poor quality of paper.

It is very difficult to print a specimen of extreme lightness. This is about as close as the printer will come in showing this weakness.

## HOW TO TEST FOR QUALITY OF LINE

Make a letter finder by cutting a hole a little larger than the letter in a piece of cardboard. Place the hole of this finder over each letter in turn and mark the letters which are illegible due to the quality of line. Have pupils practice these letters from their writing books separately until the letters are perfectly legible. Then have them write the whole word again and test as before.





Letter  
Finder





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